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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/235,319	01/22/1999	RICHARD M. UBOWSKI	IYENGAR8-10	4856

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EXAMINER	
TRAN, CON P	

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application 09/235,319	Applicant(s) UBOWSKI ET AL.
	Examiner Con P. Tran	Art Unit 2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 January 1999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. **Claim 1** is rejected under 35 U.S.C. 102(b) as being anticipated by Ariyama et al. U.S. Patent 6,201,866.

Regarding **claim 1**, Ariyama et al. teaches an echo canceler (see col. 2, lines 39-42; Fig. 1, 4, and respective portions of the specification) comprising:

an echo canceler module (see col. 2, lines 39-42) capable of configuration as one of an acoustic echo canceler and a hybrid echo canceler (see col. 8, lines 33-41); and

a control register (see col. 2, lines 39-42) adapted to configure the echo canceler module as the one of the acoustic echo canceler and the hybrid echo canceler (see col. 8, lines 33-41);

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 2-3, and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ariyama et al. U.S. Patent 6,201,866 in view of Iyengar U.S. Patent 5,663,955.

Regarding **claim 2**, Ariyama et al. teaches an echo canceler according to claim 1. However, Ariyama et al. does not explicitly disclose an echo canceler wherein:

the control register is adapted to configure a span length of the echo canceler module.

In the same field of endeavor, Iyengar teaches an echo canceler (see Fig. 3 and respective portions of the specification) wherein:

the control register (204) is adapted to configure a span length of the echo canceler module (see col. 9, line 64 – col. 10, line 17) so that the controller couples the

coefficient memory to the echo canceller with the greatest need for adaptive operation (see col. 4, lines 24-26) .

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included within the Ariyama et al. reference a control register as taught by Iyengar since such combination would have provided the controller to couple the coefficient memory to the echo canceller with the greatest need for adaptive operation as suggested by Iyengar in column 4, lines 24-26.

Regarding **claim 3**, Ariyama et al. in view of Iyengar further teaches the echo canceler according to claim 2, wherein:

the span length is adapted to be operably reconfigurable (see Ariyama col. 8, lines 33-41 and Iyengar col. 9, lines 64 - col. 10, line 29);

Regarding **claim 14**, Ariyama et al. further teaches the echo canceler according to claim 1, wherein the echo canceler module is adapted to configurably receive an input signal from:

a microphone (see col. 8. 2, lines 15-24);

a telephone line in (see col. 2, lines 15-24).

5. **Claims 4-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ariyama et al. U.S. Patent 6,201,866 in view of Sih U.S. Patent 5,687,229.

Regarding **claim 4**, Ariyama et al. teaches an echo canceler according to claim 1. However, Ariyama et al. does not explicitly disclose an echo canceler wherein:

the control register is adapted to configure a step size relating to adaptation of the echo canceler module.

In the same field of endeavor, Sih teaches an echo canceler (see Fig. 5 and respective portions of the specification) wherein:

the control register (180) is adapted to configure a step size relating to adaptation of the echo canceler module (see col. 12, lines 40-46) in order to utilize novel techniques that automatically compensate for flat-delays in the echo channel, and permit fast initial adaptation (see col. 3, lines 15-17) .

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included within the Ariyama et al. reference a control register as taught by Sih since such combination would have utilized novel techniques that automatically compensate for flat-delays in the echo channel, and permit fast initial adaptation as suggested by Sih in column 3, lines 15-17.

Regarding **claim 5**, Ariyama et al. further teaches the echo canceler according to claim 4, wherein:

the step size is adapted to be operably reconfigurable (see col. 8, lines 33-41).

Regarding **claim 6,** Sih further teaches an echo canceler (see Fig. 5 and respective portions of the specification) according to claim 1, wherein:

the control register (180) is adapted to configure an ability to update tap information relating to the echo canceler module (see col. 13, lines 28-47).

Regarding **claim 7**, Ariyama et al. further teaches the echo canceler according to claim 6, wherein:

the ability to update is adapted to be operably reconfigurable (see col. 8, lines 33-41).

Regarding **claim 8,** Sih further teaches an echo canceler (see Fig. 2, 5 and respective portions of the specification) according to claim 1, wherein:

the control register is adapted to select one of a plurality of possible adaptation modes of the echo canceler module (see col. 7, lines 10-67).

Regarding **claim 9**, Ariyama et al. further teaches the echo canceler according to claim 8, wherein:

the selection is adapted to be operably reconfigurable (see col. 8, lines 33-41).

6. **Claims 10-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ariyama et al. U.S. Patent 6,201,866 in view of Velardo et al. U.S. Patent 5,587,998.

Regarding **claim 10**, Ariyama et al. teaches an echo canceler according to claim 1. However, Ariyama et al. does not explicitly disclose an echo canceler wherein:

the control register is adapted to select between sub-band center clipping and full-band center clipping with respect to the echo canceler module.

In the same field of endeavor, Velardo et al. teaches an echo canceler (see Fig. 2, 3, 6, and respective portions of the specification) wherein:

the control register is adapted to select between sub-band center clipping and full-band center clipping with respect to the echo canceler module (see col. 3, lines 1-22 and col. 5, lines 41-65) so that a good match to the actual noise spectrum can be achieved even in the presence of narrow band line noise (see col. 3, lines 40-42).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included within the Ariyama et al. reference a control register is adapted to select between sub-band center clipping and full-band center clipping with respect to the echo canceler module as taught by Velardo et al. since such combination would have achieved a good match to the actual noise spectrum even in the presence of narrow band line noise as suggested by Velardo et al. in column 3, lines 40-42.

Regarding **claim 11**, Ariyama et al. further teaches the echo canceler according to claim 10, wherein:

the selection is operably reconfigurable (see col. 8, lines 33-41).

Regarding **claim 12,** Velardo et al. further teaches an echo canceler (see Fig. 2, 3, 6, and respective portions of the specification) according to claim 1, wherein:

the control register is adapted to select between sub-band echo cancellation and full-band echo cancellation (see col. 5, lines 41-65).

Regarding **claim 13**, Ariyama et al. further teaches the echo canceler according to claim 12, wherein:

the selection is operably reconfigurable (see col. 8, lines 33-41).

7. **Claims 15 and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Prior Art (Admitted by Applicant).

Regarding **claim 15,** Admission teaches a method of configuring an echo canceler module as either an acoustic echo canceler or as a hybrid echo canceler (see page 4, lines 7-14), the method comprising:

configuring the echo canceler module as one of the acoustic echo canceler and the hybrid echo canceler (see page 4, lines 7-14);

operating the echo canceler module in an operation mode utilizing the echo canceler module as configured (see page 4, lines 7-14); and

reconfiguring the echo canceler module as the other of the acoustic echo canceler and the hybrid echo canceler (see page 4, lines 7-14).

It should be noted that Admission does not explicitly discloses reconfiguring the echo canceler.

Nevertheless, it is well established and known in the art that there can be no invention in merely arranged switching or providing means to "selectively" alternate among known configurations, and it is generally considered obvious by doing so. See Duplan Corp. v. Deering Milliken, 197 USPQ 342, 351 (#94).

In this regard, to provide additional switch/switches for selecting desired known configuration(s) for cost saving purpose would have been considered obvious for one of ordinary skill in the art.

Regarding **claim 22**, this claim merely reflects the apparatus to the method claim of claim 15 and is therefore rejected for the same reasons.

8. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Prior Art (Admitted by Applicant) in view of Iyengar U.S. Patent 5,663,955.

Regarding **claim 16,** Admission teaches a method of configuring an echo canceler module as either an acoustic echo canceler or as a hybrid echo canceler (see page 4, lines 7-14) according to claim 15.

However, Admission does not explicitly disclose an echo canceler wherein the reconfiguring comprises:

changing a span length of the echo canceler module.

In the same field of endeavor, Iyengar teaches an echo canceler module (see Fig. 3 and respective portions of the specification) wherein:

changing a span length of the echo canceler module (see col. 9, line 64 – col. 10, line 17) so that the controller couples the coefficient memory to the echo canceller with the greatest need for adaptive operation (see col. 4, lines 24-26) .

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included within the Admission echo canceler module as taught by Iyengar since such combination would have provided the controller to couple the coefficient memory to the echo canceller with the greatest need for adaptive operation as suggested by Iyengar in column 4, lines 24-26.

9. **Claims 17-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Prior Art (Admitted by Applicant) in view of Sih U.S. Patent 5,687,229.

Regarding **claim 17,** Admission teaches a method of configuring an echo canceler module as either an acoustic echo canceler or as a hybrid echo canceler (see page 4, lines 7-14) according to claim 15.

However, Admission does not explicitly disclose an echo canceler wherein the reconfiguring comprises:

changing an adaptation speed of the echo canceler module.

In the same field of endeavor, Sih teaches an echo canceler module (see Fig. 5 and respective portions of the specification) wherein the reconfiguring comprises:

changing an adaptation speed of the echo canceler module (see col. 12, lines 40-46) in order to utilize novel techniques that automatically compensate for flat-delays in the echo channel, and permit fast initial adaptation (see col. 3, lines 15-17) .

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included within the Admission an echo canceler module as taught by Sih since such combination would have utilized novel techniques that automatically compensate for flat-delays in the echo channel, and permit fast initial adaptation as suggested by Sih in column 3, lines 15-17.

Regarding **claim 18,** Sih further teaches a method of configuring an echo canceler module as either an acoustic echo canceler or as a hybrid echo canceler (see Fig. 5 and respective portions of the specification) according to claim 15, wherein the reconfiguring comprises:

changing an enablement status of a tap update ability of the echo canceler module (see col. 13, lines 28-47).

Regarding **claim 19,** Sih further teaches the method of configuring an echo canceler module as either an acoustic echo canceler or as a hybrid echo canceler (see Fig. 5 and respective portions of the specification) according to claim 15, wherein the reconfiguring comprises:

changing an adaptation mode of the echo canceler module (see col. 7, lines 10-67).

10. **Claims 20-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Prior Art (Admitted by Applicant) in view of Velardo et al. U.S. Patent 5,587,998.

Regarding **claim 20,** Admission teaches a method of configuring an echo canceler module as either an acoustic echo canceler or as a hybrid echo canceler (see page 4, lines 7-14) according to claim 15.

However, Admission does not explicitly disclose an echo canceler module wherein the reconfiguring comprises:

selecting between sub-band center clipping or full-band center clipping with respect to the echo canceler module

In the same field of endeavor, Velardo et al. teaches an echo canceler (see Fig. 2, 3, 6, and respective portions of the specification) wherein the reconfiguring comprises:

selecting between sub-band center clipping or full-band center clipping with respect to the echo canceler module (see col. 3, lines 1-22 and col. 5, lines 41-65) so that a good match to the actual noise spectrum can be achieved even in the presence of narrow band line noise (see col. 3, lines 40-42).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included within the Admission an echo canceler module is adapted to select between sub-band center clipping or full-band center clipping with respect to the echo canceler module as taught by Velardo et al. since such

combination would have achieved a good match to the actual noise spectrum even in the presence of narrow band line noise as suggested by Velardo et al. in column 3, lines 40-42.

Regarding **claim 21,** Admission further teaches a method of configuring an echo canceler module as either an acoustic echo canceler or as a hybrid echo canceler (see page 4, lines 7-14) according to claim 15, wherein the reconfiguring comprises:

selecting between sub-band echo cancellation or full-band echo cancellation with respect to the echo canceler module (see col. 5, lines 41-65).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Inventor	Publication	Number	Disclosure
Iyengar et al.	US Patent	6,385,176	A communication system based on echo canceler tap profile.
Haneda et al.	US Patent	5,721,772	A subband acoustic echo canceller.
Duttweiler	US Patent	5,566,167	A subband echo canceler.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Con P. Tran whose telephone number is (703) 305-2341. The examiner can normally be reached on M - F (8:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Customer Service Office at telephone number (703) 306-0377.

cpt CPT
June 3, 2002

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